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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,490	07/27/2001	Hung-Ju Lee	SNY-P4516	9213

24337 7590 03/10/2006

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EXAMINER	
AN, SHAWN S	
ART UNIT	**PAPER NUMBER**
2613	

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/916,490	LEE, HUNG-JU	
	Examiner	Art Unit	
	Shawn S. An	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *10-16 and 32* is/are allowed.

6)☒ Claim(s) *1-9 and 17-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Remarks

1. Applicant's remarks as filed on 12/14/05 have been fully considered but they are not persuasive.

The Applicant presents arguments of which the previously cited prior art references fail to establish/teach:

A) prima facie case of obviousness for claims 1-9 and 29-31;

B) dropping pixels from a reference frame of video, and after dropping pixels, decoding the dropped pixels to form a drift reference frame, and *prima facie* case of obviousness for claims 17-18 and 23-24;

C) claims limitations for 18 and 24;

D) claims limitations for 19 and 25;

E) claims limitations for 20-21 and 26-27; and

F) claims limitations for 22 and 28.

However, after careful scrutiny of the previously cited prior art references, the Examiner must respectively disagree, and maintain the grounds of rejection for the reasons that follow.

In response to arguments *A)*, Applicant is reminded that Morel's (primary) reference was introduced for teaching MPEG transcoder having drift compensation (Fig. 1, see DCL), comprising an inverse quantizer for inverse quantizing at least one coefficient to produce an inverse quantized coefficient block as previously discussed.

All of the remaining claims limitations of which Morel's reference lacks for claims 1, 4, 29 are clearly met/taught by Liu et al's (secondary) reference.

In other words, Liu et al does not necessarily have to discuss any teaching of drift reduction or drift compensation, since Morel's (primary) reference already establishes the teaching of drift compensation. It is only necessary that Liu et al's reference belong in a relevant art (class) with respect to Morel's reference for further supporting inventive technique(s) as a secondary reference.

Applicant also argues that Liu only teaches "coefficient dropping" when his process enters "panic mode". Therefore, there is no teaching in Liu of coefficient dropping for or in the context of drift compensation.

In response, once again Liu et al does not necessarily have to discuss any teaching of drift reduction or drift compensation, since Morel's (primary) reference already establishes the teaching of drift compensation. Furthermore, substantially all of the independent claims with respect to argument A) discusses drift reduction/compensation only in two occasions (preamble and the last line of the corresponding independent claims).

Furthermore, Liu et al does teach forming a dropped coefficient block (col. 8, lines 51-59). Liu teaches at block 618 coefficient drop being performed as required, and at block 700, the processing mode (a transcode mode (Fig. 7, 740), bypass mode (750), or re-quantize mode (755)) selection is made (col. 8, lines 51-59). Therefore, Applicant's "panic mode" is considered irrelevant even if the concept of coefficient dropping is only carried out when panic mode is entered, since Liu et al indeed teaches the processes (method steps) in which to derive/produce drift reduction/compensation as claimed for supporting Morel's (primary) lacking claim limitations.

Further, if *a transcode mode* is selected, Figs. 3a-3b clearly illustrate a prior art/simplified transcoder that performs full transcoding, which is one of the transcoding modes that may be selected in accordance with the invention (col. 2, lines 24-30). Furthermore, since Liu teaches dropping at least one coefficient in the block (618), which is an immediate step before processing of the mode selection (700), when full transcoding mode (Figs. 3a-3b) is performed as selected by the processing mode (700), the result of the typical DCT (Discrete Cosine Transform)(Figs. 3a-3b, 370) process would be forming a dropped coefficient block (comprising transform coefficients) containing at least one coefficient, since at least one coefficient in the block has been dropped as discussed in the element (618) at the beginning (onset) of full transcoding mode.

Therefore, the inventive concepts of drift reduction/compensation is met by Morel's (primary) reference and the processes (method steps) in which to derive/produce drift reduction/compensation is met by Liu et al's (secondary) reference.

Moreover, in response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to Applicant's argument that there is no suggestion/motivation to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In response to arguments *B),* Liu et al discloses the MPEG transcoder (Fig. 3(b)) having motion compensation, comprising:

dropping pixels from a reference frame of video (Fig. 6, 618; col. 3, lines 9-32); and after dropping pixels (limitation fully described below), decoding (Fig. 3(a), elements 310, 315, 325; Fig. 3(b), elements 315 and 384) the dropped pixels to form a reduced reference frame (Previous_FrameBuffer 351).

Initially, Liu does teach dropping a coefficient in the block (618). However, Liu further teaches at block 618, coefficient drop being performed as required, and at block 700, the processing mode (a transcode mode (Fig. 7, 740), bypass mode (750), or re-quantize mode (755)) selection being made (col. 8, lines 51-59).

If *a transcode mode* is selected, Figs. 3(a) and 3(b) clearly illustrate a transcoder that performs full transcoding, which is one of the transcoding modes that may be selected in accordance with the invention (col. 2, lines 24-30). Furthermore, since Liu teaches dropping at least one coefficient in the block (618), which is an immediate step before processing of the mode selection (700), when the full transcoding mode (Figs.

3a-3b) is performed as selected by the processing mode (700), the result of the typical decoding [VLD (315); inverse DCT (IDCT) (Fig. 3a, 325; Fig. 3b, 384)] process would result in decoding dropped coefficient(s) in the block (618), thereby outputting the ***dropped pixels*** (conversion to pixel domain data) to form a reduced reference frame (Previous_FrameBuffer 351). Therefore, the conversion by decoding process changed the coefficients from frequency domain to the pixel domain. Since, there were already dropped coefficients as discussed above as an input, the dropped coefficients were simply converted to the *dropped pixels* (0 coefficient (frequency domain) converted to the 0 pixel (pixel domain) is always 0).

Note: an inverse DCT (IDCT) processes the coefficients to provide pixel domain data (col. 5, lines 35-45 and lines 66-67; col. 6, line 1).

Therefore, in view of the reasons as discussed above, dropping pixels are met by element 618 of Fig. 6, due to conversion from frequency domain to the pixel domain as discussed.

As per *prima facie* case of obviousness for claims 17-18 and 23-24, see discussion(s) directly below.

In response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to Applicant's argument that there is no suggestion/motivation to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In response to argument *C),* Morel discloses the current frame having a plurality of motion vectors, and the drift compensator compensating for each of the

motion vectors (col. 5, lines 54-66). Furthermore, Le Clerc teaches the mapping as previously discussed.

Therefore, by incorporating all of teachings as above, it would have been obvious to a person of ordinary skill in the relevant art to recognize the mapping being carried out for each of the motion vectors.

In response to argument *D),* Morel discloses an inverse quantizer (Fig. 1, IQ_2) for inverse quantizing at least one coefficient to produce an inverse quantized coefficient block.

Furthermore, Liu et al teaches:

forming a dropped coefficient block containing the at least one coefficient (col. 8, lines 51-59); More detail follows;

Liu does teach forming a dropped coefficient block (col. 8, lines 51-59). Liu teaches at block 618 coefficient drop being performed as required, and at block 700, the processing mode (a transcode mode (Fig. 7, 740), bypass mode (750), or re-quantize mode (755)) selection is made (col. 8, lines 51-59).

If *a transcode mode* is selected, Figs. 3a-3b clearly illustrate a prior art/simplified transcoder that performs full transcoding, which is one of the transcoding modes that may be selected in accordance with the invention (col. 2, lines 24-30). Furthermore, since Liu teaches dropping at least one coefficient in the block (618), which is an immediate step before processing of the mode selection (700), when full transcoding mode (Figs. 3a-3b) is performed as selected by the processing mode (700), the result of the typical DCT (Discrete Cosine Transform)(Figs. 3a-3b, 370) process would be forming a dropped coefficient block (comprising transform coefficients) containing at least one coefficient, since at least one coefficient in the block has been dropped as discussed in the element (618) at the beginning (onset) of full transcoding mode;

an inverse quantizer (Fig. 3(a), 320) for inverse quantizing at least one coefficient to produce an inverse quantized dropped coefficient block; and

an inverse DCT (325) for inversely discrete cosine transforming the inverse quantized dropped coefficient block to produce a reduced block.

Therefore, it would have been obvious to a person of skill in the relevant art employing an apparatus/method of drift compensating a current frame as taught by Morel to incorporate the concepts as taught by Liu et al so as to produce a drift reduction block as an efficient way to drift compensate the current frame, thereby at least estimating the noise level in a video sequence and increasing time efficiency and also increasing an image quality due to the drift reduction/compensation.

Note: see also **response to argument *B)*** above, if necessary.

In response to arguments *E),* Liu et al discloses dropping a plurality of coefficients in the block containing high frequency coefficients (col. 7, lines 35-40).

In response to arguments *F),* Morel discloses compensating by adding the block of video from the current frame to the block in the drift reference frame (Fig. 2, see S1).

For all of the reasons as set forth above, the Applicant's arguments are considered moot.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6 and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morel (6,498,814 B1) in view of Liu et al (6,904,094 B1) as previously discussed in the last Office action as filed on 10/13/05.

4. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morel and Liu et al as applied to claim 4 above, and further in view of Le Clerc (6,307,888 B1) as previously discussed in the last Office action as filed on 10/13/05.

5. Claims 17-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morel (6,498,814 B1) in view of Liu et al (6,904,094 B1) and Le Clerc (6,307,888 B1) as previously discussed in the last Office action as filed on 10/13/05.

Allowable Subject Matter

6. Claims 10-16 and 32 are allowed.

Claims 10-15 and 32 include novel features (all of the limitations combined as a whole, emphasized), wherein the art of records fail to anticipate or make obvious the novel features.

Claim 16 is allowed as having at least all of the claimed limitations as set forth in independent claim 10.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to *Shawn S. An* whose telephone number is 571-272-7324.

9. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SHAWN AN
PRIMARY EXAMINER

3/4/06